

REMARKS

Applicant hereby requests further consideration of the application in view of the amendments above and the comments that follow. This amendment is submitted in response to the Office Action mailed August 31, 2006 ("the Action"). Claims 1-39 are pending in the application. The Action states that Applicant's arguments with respect to Claims 1-35 have been "fully considered and are persuasive" and that 35 USC §103 rejections have been withdrawn (Action, p. 4). Applicant acknowledges this statement with appreciation.

However, the claims now stand rejected under 35 USC §101 for allegedly being directed to non-statutory subject matter. That is, the Action alleges that a "process is statutory if it requires physical acts to be performed outside the computer independent and following the steps to be performed by a programmed computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure" (citing MPEP 2106). The Action goes on to state that a claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; *i.e.*, the method recites a step or act of producing something that is concrete, tangible and useful. Applicant respectfully disagrees.

More particularly, with respect to Claims 1-13 and 33-36, the Action alleges that the claimed methods do not present information to a user nor does a physical transformation occur outside the computer. The Action concludes that the claims do not produce a concrete, tangible and useful result and that, therefore, the subject matter is non-statutory. With respect to Claims 14-22 and 37, the Action alleges that spectral contribution of correlated constituents are not claimed to be output or used in any manner; as such the Action states that, as no information is presented to a user nor does a physical transformation occur outside the computer, the claims do not produce a concrete, tangible and useful result and that, therefore, the subject matter is non-statutory. Similarly, with respect to Claims 23-32, 38 and 39, the Action states that the claimed methods evaluate an *in vitro* biosample "but no information is presented to a user" nor does a physical transformation occur outside the computer; hence, the claims do not produce a concrete, tangible and useful result, so the subject matter is deemed to be non-statutory.

Indeed, the Applicant respectfully submits that the claims recite steps that **accomplish a practical application**; namely, for example, identifying the presence or level of a

constituent in a target sample. Applicant submits that this practical application produces a concrete, useful and tangible result and is patentable. *See State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) (affirming the patentability of business methods) .

As discussed in the USPTO's Manual Of Patent Examining Procedure (MPEP):

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research....

[T]he following [example illustrates a] claimed [invention] that [has] a practical application because [it produces] useful, concrete, and tangible result: ...

-"[T]ransformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces 'a useful, concrete and tangible result' -- a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." *State Street*, 149 F3d at 1373, 47 USPQ2d at 1601....

MPEP, Sec. 2106(II).(A.), page 2100-6, cols. 1-2. (Underline added) As further discussed in the MPEP:

Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. Only when the claim is devoid of any limitation to a practical application in the technology arts should it be rejected under 35 U.S.C. Sec. 101. ...

An applicant may assert more than one practical application, but only one is necessary to satisfy the utility requirement.

MPEP, Sec. 2106(II).(A.), page 2100-7, col. 1. (Underline added.)

In addition, according to the USPTO's *Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility*, for eligibility analysis, physical transformation "is not an invariable requirement" (p. 20). In determining whether a claim provides a practical application that produces a useful, tangible and concrete result, the examiner is to weigh several factors. The "useful result" is stated to mean that the utility of the invention is specific, substantial and credible. Applicant submits that the claims meet the "useful result". The "tangible result" requirement does not necessarily mean that a claim must

be tied to a particular machine (which some of the pending claims are, *see, e.g.*, Claims 32-35), however, the claim must set forth a practical application to produce a real-world result rather than be "abstract" (*Id.*, p. 21-p.22). Applicant again submits that the claims produce a real world result and are not abstract. The phrase "concrete result" means that the process is substantially repeatable or can substantially produce the same result again, rather than being unrepeatable and unpredictable (where the invention cannot operate without undue experimentation) (*Id.*, p. 22). Finally, Applicant submits that the claims are substantially repeatable and/or can produce substantially the same result again and again.

Applicant submits that the claims recite a number of useful, tangible and concrete features, which satisfy the 101 statutory requirement, examples of some of which are restated below.

Claim 1 recites, in part, a method for determining the presence of and/or a measurement for a plurality of constituents in a composite signal extending about a spectrum of interest obtained from a target sample undergoing analysis, ...computing regression fit weighting coefficients based on data in the reduced design matrix and the composite matrix for the plurality of individual constituents to determine the levels of the selected constituents in the target sample.

Claims 6, 7, 9 and 11 recite, in part, computing regression fit weighting coefficients based on data in the reduced design matrix and the composite matrix for the plurality of individual constituents to determine the presence of and/or measurement of the selected constituents in the target sample.

Claims 14 and 18 recite, in part, computer readable program code that determines the presence of and/or measurement of at least one constituent in the target sample based on data from at least one of: (a) the regression fit weighting coefficients; and (b) the deconvolved spectral contribution of the at least one non-target variable.

Claim 19 recites, in part, computer readable program code that determines the presence of and/or measurement of at least one constituent in the target sample based on data from at least one of: (a) the design matrix; and (b) the reduced design matrix.

Claims 33 and 35 recite, in part, means for computing regression fit weighting coefficients based on data in the reduced design matrix and the composite matrix for the plurality of individual constituents to determine the presence of and/or measurement of the

selected constituents in the target sample.

For recitations of at least the emphasized features, Applicant respectfully submits that the claims meet the §101 requirement and request that these rejections be withdrawn.

Apparatus

Applicant respectfully notes that Claims 32-35 and 39 are apparatus claims and the invention is directed to a combination of interrelated elements. In most cases, a claim to a specific machine or manufacture will have a practical application (*Id.*, p. 38).

Amendments

Although Applicant strongly believes that amendment of the claims are not required, Applicant has amended certain of the claims to clarify the claimed subject matter.

New Claims

Applicant has added new dependent Claims 40-45, which depend from the independent method claims, that recite providing data based on the determined information.

CONCLUSION

Accordingly, Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any matters outstanding of resolution, she is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

Respectfully submitted,



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